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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WIMER, MICHAEL C

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 12/06/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/701,457

Applicant(s)

YAHATA ET AL.

Examiner

Michael C. Wimer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-12, 14, 15, 17-29 and 31-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1-5, 8-12, 14, 15, 17-29 and 31-36 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 24. 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 09/03/01 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because there is no complete copy of each reference. Applicant provided the first page of each Japanese patent. Four of the first-pages have an attached publication page from *Patent Abstracts Of Japan*.

Reference 56-134810 did not include a page from *Patent Abstracts Of Japan*. Applicant should be aware that *Patents Abstracts Of Japan* is a publication. If applicant wants these references to be considered, either a complete copy of the Japanese patent must be submitted, or applicant must cite the references on the Form PTO-1449 under "Other Documents" and provide the complete volume number, publication date, etc. for the *Patent Abstracts Of Japan* references. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

2. Claim 12 is objected to because of the following informalities: In line 2, it appears that "in" should be --an--. Appropriate correction is required.

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Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,3,8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshizawa et al (⁵⁵⁶⁷⁵³⁷~~3898565~~).

Regarding Claims 1,3,8 and 11, Yoshizawa et al show an antenna for a transponder comprising a magnetic core 1 (Fig. 1) composed of amorphous magnetic material and of a single stack of rectangular metallic thin plates 4 (Fig.2) insulated by oxidation (col. 6, line 16), and a coil 2 wound on the core 1 parallel to a greater rectangular dimension of the core, all arranged as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12,14,15,17-29 and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa et al (5567537) and Hollis (3683389).

Regarding Claims 12,14,15,17-29 and 31-35, Yoshizawa et al show an antenna for a transponder comprising a magnetic core 1 (Fig. 1) composed of amorphous magnetic material and of a single stack of rectangular metallic thin plates 4

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(Fig.2) insulated by oxidation (col. 6, line 16), and a coil 2 wound on the core 1 parallel to a greater rectangular dimension of the core, all arranged as claimed. No system of antennas is taught. Thus, Hollis is cited as evidence of obviousness and as resolving the level of ordinary skill in the antenna art, and shows three perpendicular antennas 10, 12 and 14, where the magnetic core antennas 12, 14 and air core antenna 10 are formed on a common substrate 30 and their axes are mutually perpendicular to one another, all arranged as claimed. It would have been obvious to the skilled artisan to employ the antenna of Yoshizawa et al in the system of Hollis, employing the single stack of magnetic material, comprised of magnetic flakes and synthetic resin. The size, shape and composition, etc., of the antenna are all obvious to the skilled artisan employing well known compositions, particularly found obvious Yoshizawa et al.

7. Claims 2, 4, 5, 9 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa et al.

Regarding Claims 2, 4, 5, 9 and 36, the shape (e.g., rounded corners), size, thickness and number of the plates are all obvious design expedients well known to and found obvious by Yoshizawa et al, as claimed.

8. Claims 1 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wennerberg (3031667) in view of D'Hont (5408243).

Regarding Claims 1 and 19, Wennerberg shows in Fig. 1, a rectangular magnetic core 10 with the coil windings 12 wound on the core parallel to a greater rectangular dimension of the core. However, the core is not composed "of a single stack of

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rectangular metallic thin plates", as claimed. Therefore, D'Hont is cited as resolving the level of ordinary skill in the antenna art and as evidence of obviousness in producing a magnetic core of thin plates. Specifically, D'Hont shows for example in Fig. 7, a transponder antenna (for a badge, card or similar object) with a magnetic core composed of a single stack of rectangular metallic "thin" plates 42A-D of amorphous magnetic material (made of magnetic particles of soft iron or flakes, as claimed, within a synthetic resin) which may be oxidized (as taught in col. 4, lines 30-35) so as to be insulated as recited. No winding of the coil in a parallel direction to the long side of the rectangle appears to be taught. The windings are absent in Fig. 7 without a suggestion as to their winding sense. However, Fig. 3 of D'Hont clearly shows such an arrangement, where the coil 28 is wound on the magnetic core parallel to a greater rectangular dimension of the magnetic core 26, the same as applicant's Figures 6A and 6B. D'Hont further implies that the winding should be wound perpendicular to the H-field by explanation of the Eddy currents in Col. 3, line 58 to Col. 4, line 62. Thus, it would have been obvious to the skilled artisan to employ the windings in Fig. 3 of D'Hont wound around the Fig. 7 embodiment (perpendicular to the H-field and parallel to the greater rectangular dimension of the core), as claimed. The Fig. 7 embodiment is deemed to show a "single stack of rectangular metallic thin plates" 42A-D because they can be formed as a single unit able to be handled as such. In Column 4, first paragraph, D'Hont describes a "single" stack of a plurality of thin plates, by stating that such an embodiment "displays a rather low quality performance and is lossy" where the stack is 12 mm wide. Instead, D'Hont suggests the use of strips cut to 2 or 3 mm in

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width to form a row of four stacks as in Fig. 7. Finally, it would have been obvious to the skilled artisan to employ the core of D'Hont in lieu of the core 10 of Wennerberg for the purpose of providing a relatively low induction loss with higher operating frequencies as compared with soft iron.

9. Claims 1-5,7-11,19-29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Hont in view of Wennerberg, Spears (3,495,264) or Fujimoto et al (3,750,180).

Regarding Claims 1,3-6,8,19,20 and 36, D'Hont shows for example in Fig. 7, a transponder antenna (for a badge, card or similar object) with a magnetic core composed of a single stack of rectangular metallic "thin" plates 42A-D of amorphous magnetic material (made of magnetic particles of soft iron or flakes, as claimed, within a synthetic resin) which may be oxidized (as taught in col. 4, lines 30-35) so as to be insulated as recited. No winding of the coil in a parallel direction to the long side of the rectangle appears to be taught because the windings are absent in Fig. 7 without a suggestion as to their winding sense. However, Fig. 3 of D'Hont clearly shows such an arrangement, where the coil 28 is wound on the magnetic core parallel to a greater rectangular dimension of the magnetic core 26, the same as applicant's Figures 6A and 6B. D'Hont further implies that the winding should be wound perpendicular to the H-field by explanation of the Eddy currents in Col. 3, line 58 to Col. 4, line 62. Thus, it would have been obvious to the skilled artisan to employ the windings in Fig. 3 of D'Hont wound around the Fig. 7 embodiment (perpendicular to the H-field and parallel to the greater rectangular dimension of the core), as claimed. The Fig. 7 embodiment is

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deemed to show a "single stack of rectangular metallic thin plates" 42A-D because they can be formed as a single unit able to be handled as such. In Column 4, first paragraph, D'Hont describes a "single" stack of a plurality of thin plates, by stating that such an embodiment "displays a rather low quality performance and is lossy" where the stack is 12 mm wide. Instead, D'Hont suggests the use of strips cut to 2 or 3 mm in width to form a row of four stacks as in Fig. 7, forming a 12 mm wide antenna.

The secondary references additionally show evidence of obviousness and resolving the level of ordinary skill in the antenna art, where Wennerberg shows coil 12 arranged on rectangular core 10, Spears shows in Fig. 4 the coil wound about the core 21, and Fujimoto et al shows a portion of the coil between terminals 12 parallel to the long sides of the rectangular core 7. It would have been obvious to employ such a directional winding in D'Hont for the purpose of maximizing directional characteristics of a particular geometrical core antenna. Shape and winding, and the direction of the winding, are all obvious design considerations, as evidenced above.

Regarding Claims 2 and 36, badges, cards or flexible sheets (col. 1, lines 15-17) are deemed to have corners that are rounded, and reduced at any angle for the purpose of convenience. Regarding Claims 7,9-11 and 21-29, D'Hont teaches various dimensions and compositions for the elements and is evidence of obviousness that such dimensions and compositions are design expedients dependent upon a particular antenna design and efficiency in the system. The specific dimensions and compositions claimed are obvious to the skilled artisan and notice of such is hereby taken.

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Frequency of operation is obvious to a specific design of the skilled artisan and dependent upon frequency allocation of the particular transponder system.

10. Claims 12,14,15,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens et al (4,937,586) in view of Takizawa et al (4,879,570) and D'Hont.

Regarding Claims 12,14,15,17 and 18, Stevens et al show a plate transponder with a spiral, air-cored loop 46 and ferrite loop antenna 48 disposed on a common substrate 34. Only one magnetic core antenna is shown where its axis is perpendicular to the air core loop antenna 46. Thus, Takizawa et al are cited as evidence of obviousness and as resolving the level of ordinary skill in the antenna art and shows a plurality of magnetic core antennas, where at least two antennas are perpendicular to each other. It would have been obvious to the skilled artisan to pluralize the single magnetic core antenna of Stevens et al according to Takizawa et al in order to provide omnidirectional coverage. Further, it would have been obvious to employ the magnetic core antenna of D'Hont in the primary reference devices for the purpose of improving efficiency by reducing eddy currents.

11. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Hont in view of Stevens et al and Takizawa et al.

As noted above, D'Hont show the claimed stricture with respect to Claim 19. Stevens and Takizawa et al are cited as resolving the level of ordinary skill in the antenna art showing plural magnetic core antennas in the transponder environment.

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It would have been obvious to the skilled artisan to employ the transponder arrangement of Stevens et al employing the D'Hont antenna along with an air core, spiral antenna and including a plurality of magnetic core antennas taught by Takizawa et al, effectively pluralizing the D'Hont antenna for system use.

12. Applicant's arguments filed 09/13/01 have been fully considered but they are not persuasive. Initially, it is noted that the statement of the first obviousness rejection has the references reversed. The combination rejection states that the claims are rejected over D'Hont in view of Wennnerberg. Applicant does state the rejection correctly in the arguments.

Specifically, contrary to applicant's arguments (on page 2, 6th paragraph), D'Hont does not teach away from the present invention because there are a plurality of a single stack of thin plates. The embodiment of Fig. 7 may be deemed a "single stack" because it can be made, and handles as a "single stack" before the winding of the coil is performed. Alternatively, D'Hont describes in Col. 4, first paragraph, a single stack 12 mm wide with low quality performance and which is lossy. D'Hont suggests a plurality of strips or stacks 3 mm wide to form an antenna 12 mm wide. Clearly, Claims 1 and 19 are implied, suggested and shown to be obvious to the skilled artisan, by D'Hont's structure and teachings. Further, contrary to applicant's arguments (page 2, 7th and 8th paragraphs of the response of 09/13/01), D'Hont does imply that the coil should be wound around the stack in Fig. 7 as in Fig. 3 (i.e., perpendicular to the H-field as taught thereby).

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Regarding applicant's arguments to Claim sets 12 and 19, they are persuasive and thus new art has been cited.

13. The patent to Takeuchi et al (3898565) is cited as of interest showing and teaching at least three mutually perpendicular, multi-layered, stacked magnetic antennas for the purpose of providing omnidirectionality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (703) 305-3555. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Michael C. Wimer
Primary Examiner
Art Unit 2821

MCW
November 19, 2001